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(21) International Application Number: PCT/US99/21174 (22) International Filing Date: 13 September 1999 (13.09.99) (30) Priority Data: 60/100,078 14 September 1998 (14.09.98) US (71) Applicant (for all designated States except US): DIAMOND MATERIALS INC. [US/US]; 120 Centennial Avenue, Piscataway, NJ 08854-3908 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): VORONOV, Oleg, A. [RU/US]; 56B Cedar Lane, Highland Park, NJ 08904 (US). TOMPA, Gary, S. [US/US]; 43 Franklin Drive, Belle Mead, NJ 08502 (US). (74) Agent: BOTJER, William, L.; P.O. Box 478, Center Moriches, NY 11934 (US).		(81) Designated States: JP, KR, US, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>Without international search report and to be republished upon receipt of that report.</i>
(54) Title: <u>FULLERENE BASED SINTERED CARBON MATERIALS</u> (57) Abstract A new class of carbon materials and their synthesis. The new carbon materials are formed by high pressure and high temperature processing of fullerene based carbon powder. The new carbon materials are harder than graphite and can be harder than steel (when the starting fullerenes are single wall nanotubes) or almost as hard as diamond (when the starting fullerenes are C ₆₀ buckyballs). The physical attributes of the materials can also be controlled by the pressing and heating parameters. These new carbon materials are conductive like graphite and unlike diamond which is an insulator. The materials can be formed by powder metallurgy techniques into any shape (cylinders, balls, tubes, rods, cones, foils, fibers or others). The new materials can also be readily doped, converted to diamond, formed within a porous composite or converted to diamond within the porous composite.		